

NATIONAL WEATHER SERVICE INSTRUCTION 10-301

JULY 5, 2006

Operations and Services

Marine And Coastal Weather Services, NWSPD 10-3

MARINE AND COASTAL SERVICES ABBREVIATIONS AND DEFINITIONS

NOTICE: This publication is available at: <http://www.nws.noaa.gov/directives/>.

OPR: OS21 (T. Pierce)

Certified by: OS21 (T. Pierce)

Type of Issuance: Routine

SUMMARY OF REVISIONS: This directive supersedes NWSI 10-301, dated July 23, 2004. This directive includes the following changes:

1. New definitions related to Small Craft Advisory, to include new headlines and regional thresholds for the “Small Craft Advisory for Hazardous Seas”, “Small Craft Advisory for Rough Bar”, and “Small Craft Advisory for Winds.”
2. A correction to the Hurricane Force Wind Warning speed.
3. The definitions for Coastal/Lakeshore Flood, Coastal/Lakeshore Flood Statement, and High Surf Advisory were modified.
4. New definitions for Ashfall Advisory, Dense Fog Advisory, Dense Smoke Advisory, Freezing Spray Advisory, Heavy Freezing Spray Warning, High Surf Warning, Severe Thunderstorm Watch, Tornado Watch, Low Water Advisory, and Rough Seas and Moderate Seas.
5. Expanded guidance on inclusion of visibility terminology as recommended by the World Meteorological Organization.

signed

June 21, 2006

Dennis H. McCarthy
Director, Office of Climate,
Water, and Weather Services

Date

MARINE AND COASTAL SERVICES ABBREVIATIONS AND DEFINITIONS

<u>Table of Contents:</u>	<u>Page</u>
1. Allowed Abbreviations	2
2. Definitions	2

1. Allowed Abbreviations. The following have been agreed to by the NWS and the USCG for use in marine forecast texts and graphical products.

Day of Week. SUN, MON, TUE, WED, THU, FRI, SAT

Months. JAN, FEB, MAR, APR, MAY, JUN,
JUL, AUG, SEP, OCT, NOV, DEC

Direction. N, NE, E, SE, S, SW, W, NW

Latitude/Longitude. . . . N, S, E, W (e.g., 27N 97W)

Atlantic = ATLC	Average = AVG	Degree = DEG
Eastern = ERN	Equator = EQ	Fathom(s) = FM
Foot/Feet = FT	Hurricane = HURCN	Intertropical Convergence Zone = ITCZ
Knot(s) = KT	Latitude = LAT	Longitude = LONG
Millibar(s) = MB	Northern = NRN	Nautical Mile(s) = NM
Pacific = PAC	Pressure = PRES	Position = PSN
Quadrant = QUAD	Southern = SRN	Thunderstorm(s) = TSTM(S)
Tropical Depression = TD	Tropical Storm = TS	Visibility = VSBY
Western = WRN		

2. Definitions.

Advisory: A headline indicator to emphasize that a weather event significant to small craft mariners or marine operations is occurring or is possible.

Ashfall Advisory: An advisory that may be issued within the Offshore Waters Forecast (OFF), the Coastal Waters Forecast (CWF), the Nearshore Marine Forecast (NSH), or the Great Lakes Open Lakes Forecast (GLF). The advisory describes conditions associated with airborne ash plume resulting in ongoing deposition at the surface. Ashfall may originate directly from a volcanic eruption, or indirectly by wind suspending the ash, or from forest fires.

Beach Erosion: The movement of beach materials by some combination of high waves, currents and tides, or wind.

Brisk Wind Advisory: A small craft advisory issued for ice-covered waters.

Coastal/Lakeshore Flooding: (i) (Oceanic) Coastal Flooding is the inundation of land areas adjacent to bodies of salt water connected to the Atlantic Ocean, Pacific Ocean, or Gulf of Mexico, caused by sea waters over and above normal tidal action. This flooding may impact the immediate oceanfront, gulfs, bays, back bays, sounds, and tidal portions of river mouths and inland tidal waterways. (ii) Lakeshore Flooding is the inundation of land areas adjacent to one of the Great Lakes caused by lake water exceeding normal levels. Lakeshore flooding impacts the immediate lakefront, bays, and the interfaces of lakes and connecting waterways, such as rivers.

Coastal/Lakeshore Hazard Message (CFW): An NWS product issued to describe coastal and lakeshore flooding, high surf, and, at WFO option, a high risk of rip currents. A Coastal/Lakeshore Flood Advisory will be issued when minor flooding is possible (i.e, over and above normal high tide levels). A Coastal/Lakeshore Flood Watch will be issued when flooding with significant impacts is possible. A Coastal/Lakeshore Flood Warning will be issued when flooding that will pose a serious threat to life and property is occurring, imminent or highly likely.

Coastal Waters Forecast (CWF): The marine forecast for areas, including bays, harbors, and sounds, from a line approximating the mean high water mark (average height of high water over a 19-year period) along the mainland or near shore islands extending out to as much as 100 NM.

Combined Seas: Generally referred to as SEAS. Used to describe the combination or interaction of wind waves and swell in which the separate components are not distinguished. This includes the case when swell is negligible or is not considered in describing sea state. Specifically, $SEAS = \sqrt{S^2 + W^2}$ where S is the height of the swell and W is the height of the wind wave. When used, SEAS should be considered as being the same as the significant wave height.

Complex Gale/Storm: In the high seas and offshore forecasts, an area for which gale/storm force winds are forecast or are occurring but for which no single center is the principal generator of these winds.

Continental Shelf (CONSHELF): The zone bordering a continent and extending to a depth, usually around 100 FM (600 FT), from which there is a steep descent toward greater depth.

Continental Slope: The area of descent from the edge of the continental shelf into greater depth.

Dense Fog Advisory: Widespread or localized fog reducing visibilities to ¼ mile or less. A Dense Fog Advisory may be issued within the Offshore Waters Forecast, the Coastal Waters Forecast, the Nearshore Marine Forecast, and Open Lake Forecast (GLF).

Dense Smoke Advisory: Widespread or localized smoke reducing visibilities to ¼ mile or less. A Dense Smoke Advisory may be issued within the Offshore Waters Forecast, the Coastal Waters Forecast, the Nearshore Marine Forecast, and Open Lake Forecast (GLF).

Developing Gale/Storm: In the High Seas and Offshore forecasts, a headline used in the warnings section to indicate that gale/storm force winds are not now occurring but are expected before the end of the forecast period.

Expiration time: The time noted in the communication's header at which the product is no longer in effect and should have been removed from the communication system.

Extratropical Cyclone: A synoptic scale low pressure system whose primary energy source is baroclinic.

Fathom: A unit of water depth equal to 6 FT.

Fetch: The across water distance over which waves are generated by winds having an approximately constant direction and speed.

Freezing Spray Advisory: An advisory that may be issued within the Offshore Waters Forecast, the Coastal Waters Forecast, the Nearshore Marine Forecast, and the Open Lake Forecast (GLF). An accumulation of freezing water droplets on a vessel at a rate of less than 2 centimeters (cm) per hour caused by some appropriate combination of cold water, wind, cold air temperature, and vessel movement.

Gale Warning. A warning of sustained surface winds, or frequent gusts, in the range of 34 knots (39 mph) to 47 knots (54 mph) inclusive, either predicted or occurring, and not directly associated with a tropical cyclone.

Great Lakes Faxback: A dissemination system housed at Weather Forecast Office (WFO) Cleveland by which Great Lakes users request and receive hard copies of selected marine products.

Great Lakes Marine Alert Message (MAW): A message generated whenever storm force or greater winds are included in any open lakes forecast.

Great Lakes Marine Forecast (MAFOR): A coded version appended to each of the Great Lakes open lakes forecasts.

Great Lakes Marine Monitoring (MARMON): An automated program housed at WFO Cleveland which compares observations with concurrent MAFORs and provides notification of significant differences to appropriate Great Lakes WFOs.

Great Lakes Storm Summary: A message providing updated information whenever a storm warning is in effect on any of the Great Lakes.

Great Lakes Weather Broadcast (LAWEB): An observation summary prepared to provide Great Lakes mariners with a listing of weather observations along or on the Lakes.

Gust: A fluctuation of the mean wind speed with variations of 10 knots or more between peaks and lulls. Gusts should usually not be included in the forecasts with wind speeds below 10 knots. Winds will be considered gusty when gusts are regularly observed over a time period of more than 2 hours.

Hague Line: The North Atlantic boundary between the U.S. and Canada fishing waters as determined by the World Court (located in The Hague, Netherlands).

Heavy Freezing Spray Warning: A warning that may be issued within the Offshore Waters Forecast, the Coastal Waters Forecast, the Nearshore Marine Forecast, and the Open Lake Forecast (GLF). An accumulation of freezing water droplets on a vessel at a rate of 2 cm per hour or greater caused by some appropriate combination of cold water, wind, cold air temperature, and vessel movement.

High Seas Forecasts (HSF): Marine forecasts for the major oceans of the world. In this context, major gulfs or seas (e.g., the Gulf of Mexico or the Bering Sea) are included within these forecast areas. Areas of responsibility for the U.S. are determined by international agreements under the auspices of the World Meteorological Organization (WMO).

High Surf Advisory. A High Surf Advisory is issued when breaking wave action poses a threat to life and property within the surf zone. High surf criteria varies by region. High Surf Advisories are issued using the Coastal Hazard Message (CFW) product.

High Surf Warning. A High Surf Warning is issued when breaking wave action results in an especially heightened threat to life and property within the surf zone. High surf criteria varies by region. High Surf Warnings are issued using the Coastal and Lakeshore Hazard Message (CFW) product.

Hurricane/Typhoon: A tropical cyclone in which the maximum sustained surface wind is 64 knots (74 mph) or greater.

Hurricane Warning: A warning for sustained surface winds of 64 knots (74 mph) or higher associated with a hurricane are expected in a specified coastal area within 24 hours or less. A hurricane or typhoon warning can remain in effect when dangerously high water or a combination of dangerously high water and exceptionally high waves continue even though winds may be less than hurricane force.

Hurricane Force Wind Warning: A warning for sustained winds, or frequent gusts, of 64 knots (74 mph) or greater, either predicted or occurring, and not directly associated with a tropical cyclone.

Issuance time: The time the forecaster transmits the forecast.

Knot: Unit of speed used in navigation, equal to 1 NM per hour or about 1.15 statute miles per hour.

Low Water Advisory. An advisory that may be issued in the Coastal Waters Forecast, the Nearshore Marine Forecast, and the Open Lakes Forecast (GLF) to describe water levels which are significantly below average levels over the Great Lakes and coastal marine zones.

Marine Observations Report (MOB): A coded marine observation of the MAROB program whereby mariners report current marine weather conditions, similar to the more in-depth Voluntary Observing Ship program, however, "MAROB" replaces the "BBXX" coding in the report. Pre-registration and training is not a prerequisite for participation.

Marine Weather Statement (MWS): A product issued to provide mariners with details on significant or potentially hazardous conditions not otherwise covered in existing marine warnings and forecasts.

Marine Zone: Specific, defined over-water areas contained in the various NWS marine forecasts. These are the equivalent of "zones" in the public forecast program.

Mean Lower Low Water: A tidal datum. The average of the lower low water height of each tidal day observed over the National Tidal Datum Epoch. For stations with shorter series, simultaneous observational comparisons are made with a control tide station in order to derive the equivalent datum of the National Tidal Datum Epoch.

Moderate Seas: Sea conditions associated with regionally defined wind thresholds over bays, inlets, harbors, inland waters, and estuaries where waves or seas have whitecaps and some spray.

Nautical Mile: Unit of distance, equal to about 1.15 statute miles (length of 1 minute of latitude).

Navigation Teleprinter Exchange (NAVTEX) Forecast: A marine forecast combining various coastal waters and offshore forecasts issued to accommodate the USCG NAVTEX communication system.

Nearshore Marine Forecast (NSH): The seasonal marine forecast for an area of the Great Lakes from a line approximating mean low water datum along the coast or an island, including bays, harbors, and sounds, out to 5 NM.

North Wall: Coast side boundary of the Gulf Stream generally extending northeast from Cape Hatteras where the Gulf Stream turns northeast.

Offshore Waters Forecast (OFF): A marine forecast for that portion of the oceans, gulfs, and seas beyond the coastal waters extending to a specified distance from the coastline, to a specified depth contour, or covering an area defined by specific latitude and longitude points.

Open Lakes Forecast (GLF): The marine forecast for the U.S. waters within a Great Lake not including the waters covered by an existing Nearshore Waters Forecast (NSH).

Other Marine Reports (OMR): A free-text observation summary prepared by a local Weather Forecast Office to provide mariners a listing of coastal marine weather observations.

Plain Language Ship Reports (PLS): A free-text summary of Marine Report(s) (MAREP). MAREP is a program whereby mariners report current coastal marine weather conditions in the form of plain language reports to local Weather Forecast Offices. Pre-registration and training is not a prerequisite for participation.

Predominant Wind: The wind that prevails and generates the local component of the significant sea conditions across the forecast area. This is the wind included in all marine forecast products and is defined as a 10-meter wind, except over the nearshore marine zones where it is defined to be the wind at a 3-meter height.

Primary control tide station. A tide station where continuous observations have been made for a minimum of 19 years. Its purpose is to provide data for computing accepted values essential to tide predictions and for determining tidal datums for coastal and marine boundaries. The data series from primary control tide stations serves as a primary control for the reduction of tidal datum for subordinate tide stations with a shorter period of record. The 19 year period is the official tidal epoch for calculating tidal datums.

Rapidly Intensifying: As defined by, and used in, Offshore and High Seas products from the Ocean Prediction Center, any maritime cyclone whose central pressure is dropping, or is expected to drop, at a rate of 1 MB per hour for 24 hours.

Rip Currents: A relatively small-scale surf-zone current moving away from the beach. Rip currents form as waves disperse along the beach causing water to become trapped between the beach and a sandbar or other underwater feature. The water converges into a narrow, river-like channel moving away from the shore at high speed.

Rough Seas: Sea conditions associated with regionally defined wind thresholds over bays, inlets, harbors, inland waters, and estuaries where larger waves are forming with whitecaps and spray everywhere.

Sea Ice: Any form of ice found at sea which has originated from the freezing of sea water (sea ice does NOT include superstructure icing). Ice formed from the freezing of the waters of the Great Lakes will be considered the same as sea ice.

Seas: See Combined Seas.

Seiche. A standing wave oscillation of water in large lakes usually created by strong winds and/or a large barometric pressure gradient.

Severe Thunderstorm Watch: A watch issued within the Coastal Waters Forecast, the Great Lakes Open Lakes Forecast, and the Nearshore Marine Forecast. Reference NWSI 10-512 for severe thunderstorm watch criteria.

Significant Wave Height: The average height (trough to crest) of the one-third highest waves. An experienced observer will most frequently report heights equivalent to the average of the highest one-third of all waves observed.

Small Craft: There is no precise definition of a small craft. Any vessel that may be adversely affected by small craft advisory criteria. Other considerations include the experience of the vessel operator, and the type, overall size, and sea worthiness of the vessel.

Small Craft Advisory (SCA): An advisory issued by coastal and Great Lakes Weather Forecast Offices (WFO) for areas included in the Coastal Waters Forecast or Nearshore Marine Forecast (NSH) products. Thresholds governing the issuance of small craft advisories are specific to geographic areas.

Note: "Frequent gusts" are typically long duration conditions (greater than 2 hours). For a list of NWS Weather Offices by Region, refer to the following website:

<http://www.nws.noaa.gov/organization.html>

NWS Region	Thresholds for Small Craft Advisory (SCA)
Eastern	Sustained winds or frequent gusts ranging between 25 and 33 knots (except 20 to 25 knots, lower threshold area dependent, to 33 knots for harbors, bays, etc.) and/or seas or waves 5 to 7 feet and greater, area dependent.
Central	Sustained winds or frequent gusts (on the Great Lakes) between 22 and 33 knots inclusive, and/or seas or waves greater than 4 feet.
Southern	Sustained winds of 20 to 33 knots, and/or forecast seas 7 feet or greater that are expected for more than 2 hours.
Western	Sustained winds of 21 to 33 knots, potentially in combination with wave heights exceeding 10 feet (or wave steepness values exceeding local thresholds).
Alaska	Sustained winds or frequent gusts of 23 to 33 knots. A small craft advisory for rough seas may be issued for sea/wave conditions deemed locally significant, based on user needs, and should be no lower than 8 feet.
Pacific	Sustained winds 25 knots or greater and seas 10 feet or greater; except in Guam where it is sustained winds 22 to 33 knots and/or combined seas of 8 feet or greater.

Small Craft Advisory for Hazardous Seas (SCAHS): An advisory issued by coastal and Great Lakes Weather Forecast Offices (WFO). This advisory may be issued within the Coastal Waters Forecast or Nearshore Marine Forecast products. This advisory may be issued when wind speeds are lower than small craft advisory criteria, yet waves or seas are potentially hazardous due to wave period, steepness, or swell direction. Thresholds governing the issuance of Small Craft Advisories for Hazardous Seas are specific to geographic areas.

NWS Region	Thresholds for Small Craft Advisory for Hazardous Seas (SCAHS)
Eastern	Seas or waves 5 to 7 feet and greater, area dependent.
Central	Seas or waves greater than 4 feet.
Southern	Seas 7 feet or greater that are expected for more than 2 hours.

Western	Seas 10 feet or greater; or wave steepness values exceeding local criteria.
Alaska	Seas or wave conditions deemed locally significant, based on user needs, and should be no lower than 8 feet.
Pacific	Seas 10 feet or greater; except in Guam where it is combined seas of 8 feet or greater.

Small Craft Advisory for Rough Bar (SCARB). An advisory issued by coastal and Great Lakes Weather Forecast Offices (WFO) for specialized areas near harbor or river entrances known as bars. This advisory may be included within the Coastal Waters Forecast or Nearshore Marine Forecast products. Waves in or near such bars may be especially hazardous to mariners due to the interaction of swell, tidal or river currents in relatively shallow water. Thresholds governing the issuance of Small Craft Advisories for Rough Bar are specific to local geographic areas, and are based upon parameters such as wave steepness, wind speed and direction, and local bathymetry.

Small Craft Advisory for Winds (SCAW). An advisory issued by coastal and Great Lakes Weather Forecast Offices (WFO). This advisory may be included in the Coastal Waters Forecast or Nearshore Marine Forecast products. This advisory may be issued when wave heights are lower than small craft advisory criteria, yet wind speeds are potentially hazardous. Thresholds governing the issuance of small craft advisories are specific to geographic areas.

NWS Region	Thresholds for Small Craft Advisory for Winds (SCAW)
Eastern	Sustained winds ranging between 25 and 33 knots (except 20 to 25 knots, lower threshold area dependent, to 33 knots for harbors, bays, etc.)
Central	Sustained winds or frequent gusts (on the Great Lakes) between 22 and 33 knots inclusive.
Southern	Sustained winds of 20 to 33 knots that are expected for more than 2 hours.
Western	Sustained winds of 21 to 33 knots.
Alaska	Sustained winds or frequent gusts of 23 to 33 knots.
Pacific	Sustained winds 25 knots or greater; except in Guam where it is sustained winds of 22 to 33 knots.

Special Marine Warning (SMW): A warning of potentially hazardous weather conditions usually of short duration (up to 2 hours) producing sustained marine thunderstorm winds or associated gusts of 34 knots or greater; and/or hail 3/4 inch or more in diameter; and/or waterspouts affecting areas included in a Coastal Waters Forecast, a Nearshore Marine Forecast, or an Great Lakes Open Lakes Forecast that is not adequately covered by existing marine warnings. Also used for short duration mesoscale events such as a strong cold front, gravity wave, squall line, etc., lasting less than 2 hours and producing winds or gusts of 34 knots or greater.

Storm Surge: An abnormal rise in sea level accompanying a hurricane or other intense storm, whose height is the difference between the observed level of the sea surface and the level that would have occurred in the absence of the cyclone. Storm surge is usually estimated by subtracting the normal or astronomic tide from the observed storm tide.

Storm Tide: The actual level of sea water resulting from the astronomic tide combined with the storm surge. Most NWS flood statements, watches, or warnings quantifying above-normal tides will report the Storm Tide.

Storm Warning: A warning of sustained surface winds, or frequent gusts, in the range of 48 knots (55 mph) to 63 knots (73 mph) inclusive, either predicted or occurring, and not directly associated with a tropical cyclone.

Subtropical Cyclones: A non-frontal low pressure system that has characteristics of both tropical and extratropical cyclones. This system is typically an upper-level cold low with circulation extending to the surface layer and maximum sustained winds generally occurring at a radius of about 100 miles or more from the center. In comparison to tropical cyclones, such systems have a relatively broad zone of maximum winds that is located farther from the center, and typically have a less symmetric wind field and distribution of convection.

Subtropical Depression. A subtropical cyclone in which the maximum 1-minute sustained surface wind is 33 knots (38 mph) or less.

Subtropical Storm. A subtropical cyclone in which the maximum 1-minute sustained surface wind is 34 knots (39 mph) or more.

Super Typhoon. Typhoon having maximum sustained winds of 130 knots (150 mph) or greater.

Surf Zone Forecast (SRF): A forecast issued for the very narrow area of water between the high tide level on the beach and the seaward side of breaking waves.

Sustained Wind: The wind speed value averaged over a minimum of one minute.

Swell: Wind-generated waves that have traveled out of their generating area. Swell characteristically exhibits smoother, more regular and uniform crests and a longer period than wind waves.

Tidal cycle. The periodic changes in the range of tides caused primarily by varying relations among the Earth, Sun, and moon. Important terms include: (a) Aphelion -The farthest distance between the Earth and Sun, (b) Perihelion -The closest distance between the Earth and Sun, and (c) Syzygy-The instance (new moon or full moon) when the Earth, moon, and Sun are all in a straight line. For (b) and (c) the range of tides are greater than average.

Tidal Piling. Abnormally high water levels from successive incoming tides that do not completely drain because of strong winds or waves persisting through successive tide cycles.

Tornado Watch. A watch issued within the Coastal Waters Forecast, the Great Lakes Open Lakes Forecast, and the Nearshore Marine Forecast. Reference NWSI 10-512 for tornado watch criteria.

Tropical Cyclone: A warm-core, non-frontal synoptic-scale cyclone, originating over tropical or subtropical waters with organized deep convection and a closed surface wind circulation about a well-defined center.

Tropical Depression: A tropical cyclone in which the maximum sustained surface wind is 33 knots (38 mph) or less.

Tropical Disturbance: A discrete tropical weather system of apparently organized convection (generally 100 to 300 miles in diameter), originating in the tropics or subtropics, having a non-frontal migratory character and maintaining its identity for 24 hours or more. It may or may not be associated with a detectable perturbation of the wind field.

Tropical Storm: A tropical cyclone in which the maximum sustained surface wind ranges from 34 to 63 knots (39 to 73 mph) inclusive.

Tropical Storm Warning: A warning for sustained surface winds, associated with a tropical cyclone, within the range of 34 to 63 knots (39 to 73 mph), expected in a specified coastal area within 24 hours.

Tropical Wave (formerly known as inverted trough): A trough or cyclonic curvature maximum in the trade wind easterlies. The wave may reach maximum amplitude in the lower middle troposphere or may be the reflection of an upper tropospheric cold low or an equatorward extension of a mid-latitude trough.

Universal Time Coordinated (UTC): The standard international time reference based on the time at 0° longitude (Greenwich Meridian).

Valid Time: That period of time during which a forecast, until it is updated or superseded by a new forecast issuance, is in effect.

Visibility: A measure of the opacity of the atmosphere. The prevailing visibility is the greatest distance that can be seen throughout at least half the horizon circle, not necessarily continuous. Visibility reported or forecast in NWS marine products should be in nautical miles. The following terms may be used within marine products to describe visibility:

<u>Terms</u>	<u>Visibility V</u> <u>(nm)</u>
<u>VERY POOR</u>	<u>$V < 0.5$</u>
<u>POOR</u>	<u>$0.5 \leq V < 2.0$</u>
<u>MODERATE</u>	<u>$2.0 \leq V < 5.0$</u>
<u>GOOD</u>	<u>$V \geq 5.0$</u>

Warning Area: The geographic area for which a specific NWS office is responsible for warning and forecast responsibility.

Warning: A headline indicator to emphasize that a weather event hazardous to all mariners or marine operations is occurring or expected to occur.

Waterspout: A violently rotating column of air over water whose circulation extends to the surface.

Wave Period: Time, in seconds, between the passage of consecutive wave crests past a fixed point.

Wave Spectrum: The distribution of wave energy with respect to wave frequency or period. Wave spectra assist in differentiating between wind waves and swell.

Wave Steepness: The ratio of wave height to wavelength and is an indicator of wave stability. When wave steepness exceeds a $1/7$ ratio; the wave typically becomes unstable and begins to break.

West Wall: The coast side boundary of the Gulf Stream typically south of Cape Hatteras.

Wind Radii. Found in the tropical forecast advisory/products, wind radii is the largest radii of that wind speed found in that quadrant. Quadrants are defined as NE (0-90), SE (90-180), SW (180-270), and NW (270-0). As an example, given maximum 34 knot radii to 150 NM at 0 degrees, 90 at 120 degrees, and 40 NM at 260 degrees, the following line would be carried in the forecast/advisory: 150NE 90SE 40SW 150NW.

Wind Waves: May be referred to as WAVES. Waves generated from the action of wind on the local water surface. On the Great Lakes because swell is not a significant factor, WAVES is used to describe the state of the water.